A new subspecies of Buff-winged Starfrontlet *Coeligena lutetiae* from the north-west Andes of Ecuador

by Carlos Sánchez Osés

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Buff-winged Starfrontlet *Coeligena lutetiae* occurs at 2,500–4,800 m, from the Quindio region, in the Central Andes of Colombia, south on the west slope to Piura in northern Peru, and on the east slope to Lagunillas, on the border between Ecuador and Peru. DeLattre & Bourcier (1846) described the species as *Trochilus Lutetiae* and gave 'volcan du Puracé, près de Popayán [Colombia]' as the type locality. In subsequent taxonomic revisions, it was placed in the genus *Helianthea* Gould, 1848 (Bonaparte 1850, Elliot 1874, 1878, Gould 1861, Hartert 1900, Reichenbach 1853) and later by Simon (1921) in *Calligena* Simon, 1921. Goodfellow (1900) described the form *Helianthea hamiltoni* from Papallacta in eastern Ecuador. Thereafter, Peters (1945) considered *H. hamiltoni* a synonym of *lutetiae*, and merged the latter into the genus *Coeligena* Lesson, 1832. This treatment has been accepted in all subsequent taxonomic works, establishing the current monotypy of *Coeligena lutetiae* (Hilty & Brown 1986, Fjeldså & Krabbe 1990, Züchner 1999, Ridgely & Greenfield 2001, Dickinson 2003). During a taxonomic study of the genus *Coeligena* (Sánchez Osés 2003), specimens from the western slopes of the northern Ecuadorian Andes were found to show striking differences from those taken from eastern Andean slopes, suggesting the presence of an undescribed subspecies.

Material and methods

To assess geographic variation, plumage coloration and morphometric data (bill-, wing- and tail-length) were analysed (see Appendix for coordinates of collecting localities). Colour description was undertaken using Smithe (1975). Age was determined following Ortiz-Crespo (1972) and, in males, by the presence of pale cinnamon fringes to the feathers. All measurements were taken, from the left side of adult specimens, with digital callipers accurate to the nearest 0.1 mm, as follows: (1) bill-length, from the proximal end of the operculum to the tip of the maxilla; (2) length of the outermost rectrix or tail-length (r5), taken on the left outermost rectrix from the pygostyle insertion to its tip; this feather is the longest in the tail, thus, representing the total tail-length; and (3) wing-length, from the carpal joint to the tip of the outermost primary.

Results

Plumage coloration in *Coeligena lutetiae* from central Colombia to the eastern slope of the Andes in northern Peru shows little variation. Males have black heads; frontal

spot large, metallic bluish Spectrum Green (62); nape and upperparts blackish Dark Green (262); lower back less black; and uppertail-coverts Olive-Green (46). Chin and throat are metallic bluish Parrot Green (260); gular spot metallic violet Spectrum Blue (69); underparts like throat; belly more yellowish; undertail-coverts Parrot Green (160) occasionally bordered Warm Buff (118); tail-feathers entirely Olive-Green (46). Wing-coverts less blackish than upperparts; primaries and secondaries Raw Umber (223); tertials entirely Cinnamon (39), tipped Raw Umber (223). Females have the head and upperparts yellowish Dark Green (262), with a scaly head; uppertail-coverts bronzy Parrot Green (260). Chin and throat dark Clay Color (123B), bordered with tiny glittering Spectrum Green (62) discs; underparts yellowish Dark Green (262) with some slight brownish-white admixed; undertail-coverts yellowish Parrot Green (260) bordered Clay Color (123B); rectrices Greenish-Olive (49) slightly tipped white. Wings as in males, but with paler tertials. The population on the western slope of the Ecuadorian Andes (in Carchi and Pichincha) differs strikingly from that on the eastern slope (Fig. 2). Males differ in their greener upperparts, dark brownish-olive uppertail-coverts and conspicuously whitish tertials, becoming very pale Cinnamon (39) basally and tipped Raw Umber (223). Females also differ, having the upperparts less yellowish, no bronzy hue to the uppertail-coverts, the chin to upper breast pale Clay Color (123B), heavily mottled white and the belly heavily mottled Clay Color (123B); the wings are like those of males, but with more Cinnamon (39) on the tertials.

Differences between these two geographically isolated populations suggest that those birds from the west Ecuadorian Andes (Fig. 2) should be recognised as a new subspecies, principally identifiable based on the whitish tertials in adult males.

Coeligena lutetiae albimaculata, subsp. nov.

Holotype Adult male, Museum Alexander Koenig, Bonn [ZFMK], no. 8587. Collected in forest within the crater of Volcán Pichincha, Ecuador (00°10'S, 78°33'W) by an unknown collector, and originally deposited by Schröder in the Dernedde Collection in November 1912 (this collection was later acquired by ZFMK).

Paratypes Adult male, ZFMK 8588, same collection site and date as the holotype. Adult males, ZFMK 8576, 8578–79; adult females, ZFMK 8581–84, collected in Santo Domingo de los Colorados, Pichincha, Ecuador, at 1,200 m (00°15'S, 79°09'W), deposited in the Dernedde Collection by Schröder in November 1912. Adult female, ZFMK 8589, collected at Campamento Pailón, Carchi, Ecuador (00°29'S, 77°55'W), deposited in the Dernedde Collection by Schröder in November 1912.

Measurements Males of *C. l. albimaculata* have significantly longer bills and wings than those of the nominate. Females have significantly longer bills, wings and tails than the nominate (see Table 1).

Diagnosis

Measurements The diagnosability of the new subspecies was tested using a quantitative method proposed by Patten & Unitt (2002), based on the 'seventy-five per cent rule' for recognising subspecies (Amadon 1949). This method was applied for both sexes, to those body measurements that showed significant differences. In all cases, less than 75% of *albimaculata* showed differences to 90% of the nominate ($D_{al}<0$, $D_{la}<0$). The statistical analysis indicates that specimens of *albimaculata* have longer bills, wings and tails (in females), but the negative D values suggest that *albimaculata* is morphometrically indistinguishable from the nominate (Table 1).

Coloration Determination of colours was based on the standardised colour guide of Smithe (1975). In this respect, *C. l. albimaculata* is immediately distinguishable from the nominate. Male *albimaculata* (Fig. 1) has almost white tertials, obvious even at some distance, an effect enhanced by the contrasting dark brown primaries and secondaries, and dark green wing-coverts, which is not the case in those from east Ecuador (nominate). Minor variation in this diagnostic character exists: those feathers displaying a whitish wing spot are usually tipped dark brown, with small variation in the width of the brown. The feathers can also show some beige basally (e.g. the holotype). Female *albimaculata* (Figs. 3–4) is also readily diagnosable given differences in the underparts from the nominate, and to a lesser extent by the paler tertials. Female *albimaculata* has the chin and throat much less reddish cinnamon than in females of the nominate (see Chapman 1926). In the underparts, the overall coloration differs mainly in the more conspicuous pale cinnamon, white and black mottling. The coloration of breast and belly lacks or has strongly reduced glittering golden iridescence. All examined juveniles of the new subspecies were males; several had almost achieved adult plumage (except for the cinnamon-bordered undertail-covers). The coloration of the tertials in these specimens resemble *albimaculata* females (very pale cinnamon), being paler than in juveniles of the nominate.

Description of the holotype

Mandible and upper maxilla, head, and nape black; head with one large metallic Spectrum Green (62) frontal spot, bluish at certain angles; upperparts glittering, blackish Dark Green (162A); uppertail-coverts and rectrices brownish Dark Green (162A); underparts glittering Dark Green (162) with strong bluish iridescence, duller on chin; throat with metallic Bluish Violet (172B) central gular spot fringed blue; belly mottled black; undertail-coverts yellowish Dark Green (162) lightly bordered pale yellowish Cinnamon (39); lesser wing-coverts as back but much less blackish; greater wing-coverts darker and less glittering; tertials conspicuously white, with bases very pale Cinnamon (39), tipped Raw Umber (223), contrasting with wholly Raw Umber (223) remaining remiges; fringe to first remix pale yellowish Cinnamon (39). Measurements: bill-length 39.4 mm, wing-length 78.6 mm, tail-length 46 mm.

TABLE 1

Morphometric data for *Coeligena l. albimaculata* and *C. l. lutetiae*. Means (X) with standard deviation (σ), value ranges, sample sizes, and values of D_{ij} ($D_{ij}=X_i-\sigma_i t_{0.25,dfi}-X_j-\sigma_j t_{0.01,dfj}$, Patten & Unitt 2002) are given. The asterisks indicate populations showing significant differences.

Measurement	Sex	*C. l. albimaculata*	*C. l. lutetiae*	Mann-Whitney	D_{ij}
		$X_a \pm \sigma_a$	$X_l \pm \sigma_l$	U-test	
bill-length (mm)	males	39.4±0.92 (37.7–42.1)	38.4±1.82 (32.4–41.8)	U=398.50	$D_{al}<0$
		n=27	*n*=44	*P*<0.05*	$D_{la}<0$
	females	42.0±1.63 (38.1–44.3)	40.8±1.6 (37.2–43.8)	U=205.00	$D_{al}<0$
		n=23	*n*=30	*P*<0.05*	$D_{la}<0$
wing-length (mm)	males	77.2±2.78 (63.9–82.3)	75.6±2.42 (69.6–81.3)	U=459.00	$D_{al}<0$
		n=35	*n*=50	*P*<0.01*	$D_{la}<0$
	females	73.4±2.3 (68.6–79.4)	70.9±2.58 (63.8–78.2)	U=138.00	$D_{al}<0$
		n=24	*n*=23	*P*<0.01*	$D_{la}<0$
tail-length (r5) (mm)	males	45.0±5,21 (34.0–51.0)	45.4±3.62 (34.2–49.4)	U=715.50	$D_{al}<0$
		n=33	*n*=51	*P*>0.05	$D_{la}<0$
	females	43.6±2.26 (39.1–48.4)	42.4±1.70 (38.7–46.2)	U=238.00	$D_{al}<0$
		n=24	*n*=29	*P*<0.05*	$D_{la}<0$

Figure 1. Dorsal view of males showing the diagnostic almost white tertials. *C. lutetiae lutetiae*: upper two specimens from Papallacta, Ecuador (ZFMK 8586, ZFMK 8592). *C. l. albimaculata*: paratype ZFMK 8588 and holotype ZFMK 8587 (see text and Appendix for localities).

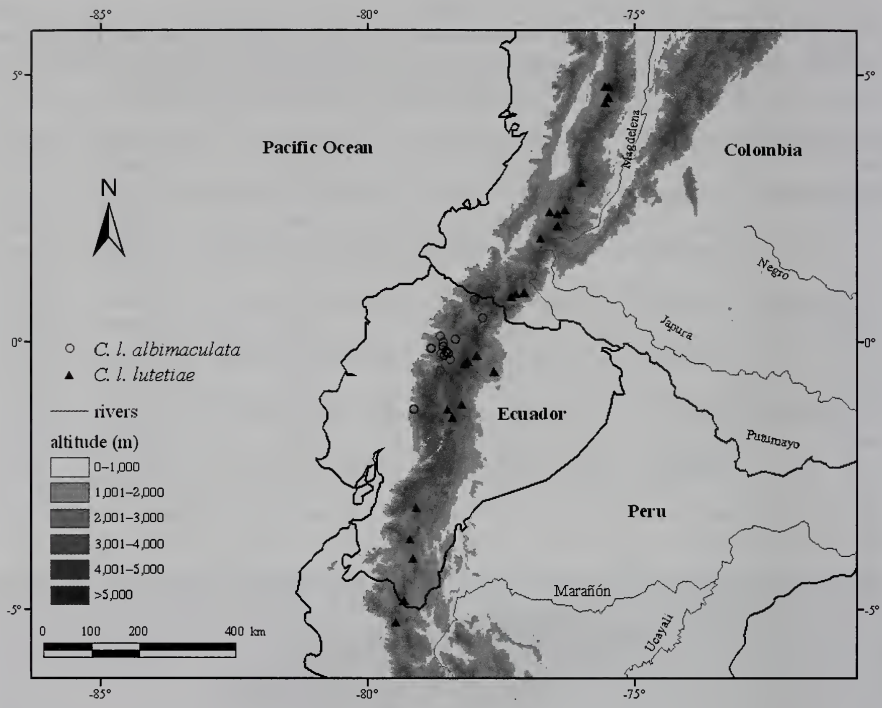

Figure 2. Ranges of *C. lutetiae albimaculata* and *C. l. lutetiae* based on examined specimens (see Appendix for localities).

Distribution and habitat

Specimens of *C. l. albimaculata* have been collected between Maldonado and Tulcán (*c.*00°47'N, 78°01'W), near the border with Colombia, south to around Quito and Volcán Pichincha, on the west slope of the north Ecuadorian Andes, at altitudes of 2,700–4,800 m (Fig. 2). Specimens of the nominate were not found on the west slope of the Andes in southern Colombia and northern Ecuador. The new subspecies occurs in dense cloud forest and elfin woodlands mixed with bamboo (Fjeldså & Krabbe 1990), but also in páramo (K.-L. Schuchmann pers. comm., *contra* Ridgely & Greenfield 2001).

Etymology

The proposed name highlights the whitish wing spot in males of *C. l. albimaculata*, this being the most obvious feature of the new subspecies.

Discussion

Members of the genus *Coeligena* possess a cis-Andean distribution (*sensu* Haffer 1967). Populations of these species usually diverge at the subspecies level on opposite slopes of the Andes (see Schuchmann 1999). Differences occur in rather few features (e.g. the length or coloration of one or more body parts). Overall plumage coloration typically is similar between subspecies of any given species, and *Coeligena lutetiae* is no exception.

Chapman (1926) noted some variation in throat coloration between females of *C. lutetiae* from the eastern and western Andes of Ecuador, but found little evidence of differences between males. Nevertheless, he considered it necessary to recognise two forms within the species. Males supporting Chapman's suggestion were located in Museum Alexander Koenig, in Bonn, Germany.

Evidence suggesting *C. l. albimaculata* has only recently evolved was uncovered. Firstly differentiation is somewhat incomplete within *albimaculata*, with respect to bill-, tail- and wing-lengths. Additionally, the pale cinnamon-coloured tertials in juvenile males of both subspecies suggests that the cinnamon colour is an ancestral state.

Divergence between *C. lutetiae* populations probably occurred recently. The relatively swift final uplift of the Andes (and the sudden emergence of an immense geographic barrier above 6,000 m) separated that population on the west slope of the north Ecuadorian Andes from the species' main range. This upheavel was accentuated during late Quaternary climatic changes and could have led to the differentiation of the two subspecies on different slopes of the Ecuadorian Andes, as further contact between the populations would have been impossible, thus stabilising the presence of the defining characters amongst individuals of the new subspecies.

Differences in both sexes of the population on the west slope of the Ecuadorian Andes (*C. l. albimaculata*) can be summarised thus: an increase in bill-, wing- and tail-length, and the loss of cinnamon pigmentation. In male *albimaculata*, the tertials change from pale cinnamon (nominate) to almost white. In female *albimaculata*, the cinnamon coloration on the chin and throat is much paler than the nominate, the golden and green colorations (characteristic of the nominate) decrease, whilst there is an concordant increase in cinnamon and white mottling.

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Figure 3. Ventral view of females showing the diagnostic paler chin and throat, and more conspicuous pale cinnamon, white and black mottling on the belly. *C. lutetiae lutetiae*: upper specimens from Santo Domingo, Ecuador (ZFMK 8584) and Quito, Ecuador (ZFMK 81.365). *C. l. albimaculata*: paratypes ZFMK 8589 and ZFMK 8581 (see text and Appendix for localities).

Figure 4. Dorsal view of females showing the less pronounced whitish tertials in *C. lutetiae albimaculata* specimens (see Fig. 3).

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APPENDIX

Coordinates of the following localities of study specimens were obtained directly from the labels, from Paynter (1993, 1997) or the Alexandria Digital Library.

C. l. albimaculata (59 specimens): Ecuador: 20 km north of Pichincha, Cordillera Alaspungo (00°00', 78°36'W); Aluguincho (00°03'N, 78°23'W); Bosques del Cráter, Pichincha (00°10'S, 78°33'W); *c.*3 km south-east of Impuerán, west slope Cerro Mongus, Carchi (00°27'N, 77°52'W); Campamento Pailón, Carchi (00°29'N, 77°55'W); Gualea, Pichincha (00°07'S, 78°50'W); Lloa, Pichincha, Oeste (00°15'S, 78°35'W); Nanegal (00°70'N, 78°40'W); Pichincha (00°10'S, 78°33'W); 'Quito' (00°13'S, 78°30'W); Río Pachijal, Pichincha (00°12'N, 78°58'W); San Pedro de Taboada (00°19'S, 78°28'W); Santo Domingo de Los Colorados (00°15'S, 79°09'W); Verdecocha, Pichincha (00°05'S, 78°37'W); west of Corazón (00°32'S, 78°39'W); west slope, south of road between Maldonado and Tulcán, south and above (00°47'N, 78°01'W).

C. l. lutetiae (83 specimens): Colombia: Almaguer, Cauca (01°56'N, 76°46'W); La Victoria, Nariño (00°55'N, 77°13'W); Laguneta, Caldas (04°35'N, 75°30'W); Llorente, Nariño (00°51'N, 77°19'W); Malrasá, Cauca (02°29'N, 76°18'W); Nevado del Huila, Páez, Cauca (03°00'N, 76°00'W); Paletara, Cauca (02°10'N, 76°26'W); Páramo Guamués, Nariño (00°55'N, 77°04'W); Popayán, Cauca (02°27'N, 76°36'W); Puracé, km 11, Cauca (02°24'N, 76°27'W); Santa Isabel, Quindio (04°47'N, 75°28'W); Termales, Tolima (04°29'N, 75°33'W). Ecuador: Alto Pastaza, Env. de Baños (01°24'S, 78°25'W); Ambato, Tungurahua (01°15'S, 78°30'W); between Loja and Zamora (04°02'S, 79°09'W); *c.*7 km south-east of Saraguro, Cordillera Cordoncillo, Loja (03°41'S, 79°13'W); east slope Cordillera Lagunillas, *c.*25 km along road south-southeast of Jimbura, Zamora-Chinchipe (04°50'S, 79°20'W); Lake Papallacta, Napo (00°24'S, 78°11'W); Mt. Tungurahua, Tungurahua (01°27'S, 78°26'W); Oyacachi, Napo (00°15'S, 77°57'W); Papallacta (00°22'S, 78°08'W); Portete, Loja (03°06'S, 79°06'W); Pueblo Viejo, Oyacachi abajo (00°15'S, 77°57'W); Río Napo (01°10'S, 78°15'W); Sumaco Arriba, Napo (00°33'S, 77°38'W). Peru: Huancabamba, Piura (05°14'S, 79°28'W).

A new subspecies of Band-winged Nightjar *Caprimulgus longirostris* from central Chile

by Nigel Cleere

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Band-winged Nightjar *Caprimulgus longirostris* is one of the more widespread South American Caprimulgids and occurs in open habitats and at forest edges throughout the southern cone of the continent, as well as in the tropical Andes and tepuis (Cleere 1998, 1999, Holyoak 2001). Seven subspecies are presently recognised, which easily separate into four distinct populations. The northern population comprises two very dark, spotted races: *C. l. ruficervix* (Sclater 1866) and *C. l. roraimae* (Chapman 1929). That in the south includes three greyish, streaked subspecies: *C. l. longirostris* Bonaparte, 1825, *C. l. bifasciatus* Gould, 1837, and *C. l. patagonicus* Olrog, 1962. The two central populations are *C. l. decussatus* Tschudi, 1844, and *C. l. atripunctatus* (Chapman 1923), with the latter appearing to represent an intermediate taxon between the northern and southern